

IN THE CLAIMS:

Claims 1-23 (Cancelled).

24.(New) A coreless transformer for passing a low frequency band waveform between about 10kHz and 2MHz, which transformer comprises a primary circuit and a secondary circuit having a number of turns such that said transformer comprises a plurality of layers, each layer having alternating primary and secondary conductors adjacent one another, there being a combination of said number of turns and a number layers sufficient to obtain a transformer action for passing said waveform from said primary circuit to said secondary circuit.

25.(New) A coreless transformer as claimed in claim 24, wherein said layer extends radially outwardly from a centre of said transformer.

26.(New) A coreless transformer as claimed in claim 24, wherein said layer forms an annulus around an axis of said transformer.

27.(New) A coreless transformer as claimed in claim 24, wherein separation between said primary and secondary conductors is between about 0.02mm and 0.075mm.

28.(New) A coreless transformer as claimed in claim 24, wherein the separation between each layers is between about 0.02mm and 0.2mm.

29.(New) A coreless transformer as claimed in claim 24, wherein there are at least ten layers.

30.(New) An electrical circuit comprising a coreless transformer

having a primary circuit and a secondary circuit having a number of turns such that said transformer comprises a plurality of layers, each layer having alternating primary and secondary conductors adjacent one another, there being a combination of said number of turns and a number layers sufficient to obtain a transformer action for passing said waveform from said primary circuit to said secondary circuit.

31.(New) A DSL modem comprising an electrical circuit as claimed in claim 30.

32.(New) A digital subscriber line (DSL) modem comprising a line interface transformer having a primary circuit for coupling to a transmission line and a secondary circuit for outputting a signal transmitted over said transmission line, each circuit being formed of a continuous electrically conductive material and in which the primary circuit and the secondary circuit are substantially parallel and are in substantially the same plane.

33.(New) A DSL modem as claimed in claim 32, wherein said primary circuit and said secondary circuit are in the form substantially parallel spirals of the conductive material in substantially the same plane.

34.(New) A DSL modem as claimed in claim 33, wherein the spiral is substantially circular, elliptical, square, rectangular, oval or non-regular.

35.(New) A DSL modem as claimed in claims 33, in which the spiral conforms substantially to a spiral formed by the polar equation $r(\theta) = \alpha\theta$, where θ is the angle in polar coordinates, r is the radius and α is a constant that regulates the number of turns and the spacing.

36.(New) A DSL modem as claimed in claim 32, wherein a number of turns of each circuit is at least 10.

37.(New) A DSL modem as claimed in claim 32, wherein there is plurality of planes, each plane forming a layer and in which said primary circuit of each layer is connected together and said secondary circuit of each layer is connected together.

38.(New) A DSL modem as claimed in claim 37, wherein said layers are substantially parallel.

39.(New) A DSL modem as claimed in claim 38, wherein the separation between said layers is not more than 0.5mm.

40.(New) A DSL modem as claimed in claim 37, wherein the primary circuits are connected in parallel or in series with one another, and the secondary circuits are connected in parallel or series with one another.

41.(New) A DSL modem as claimed in claim 37, wherein there are at least 10 layers.

42.(New). A DSL modem as claimed in claim 37, having an aspect ratio defined as diameter to width of 1:5 or more.

43.(New) A DSL modem as claimed in claim 32, wherein said line interface transformer does not comprise ferromagnetic core.

44.(New) For use in a DSL modem, a line interface transformer having a primary circuit for coupling to a transmission line and a secondary circuit for outputting a signal transmitted over said transmission line, each circuit being formed of a continuous

electrically conductive material and in which the primary circuit and the secondary circuit are substantially parallel and are in substantially the same plane.

45.(New) A method of transmitting electronic data over a transmission line, which method comprises the steps of placing said electronic data on said transmission line using a line interface transformer as claimed in claim 44.

46.(New) A method of manufacturing DSL modem, which method comprises the step of a inserting a line interface transformer according to claim 24 and electrically connecting said transformer thereto.